AGS OPERATIONS PROCEDURES MANUAL

4.98 CONFIRMATION OF PROPER PASS KEY TREE OPERATION FOR G-2

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1

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Revision No. 00

Approved: _____ 7/15/98
AGS Department Chairman / Date

A. Etkin
AGS-OPM 4.98 [Y]

Revision 0
July 15, 1998

4.98 Confirmation Of Proper Pass Key Tree Operation For G-2

1. Purpose and Scope

Specifies the procedure to be employed during periodic validation of PASS operation to ensure system conformance to approved specifications.

1.1. This procedure is only for G-2 operation, Additional/alternate procedures must be executed for RHIC operation or ATR operation.

1.2. Used to confirm that the proper operation of the PASS Key Tree for G-2 operation.

2. Responsibilities

2.1. The AGS Security Group Head shall:

2.1.1. Ensure that this procedure is executed, at no greater than six month intervals or at such times as required by the Radiation Safety Committee (RSC).

2.1.2. Review and approve the completed checklist.

2.1.3. Report any as-found failures to the Assistant to the AGS Department Chairman for ES&H and the Chairman of the Radiation Safety Committee.

2.2. Members of the AGS Security Group shall:

2.2.1. Conduct this procedure.

2.2.2. Document problems found and repairs made in the PASS Maintenance Log Book.

2.2.3. Use a copy of this procedure and attachment 1 as a checklist.

2.3. Inform the AGS Safety Section Head of any failures found.

2.3.1. The Chair of the RHIC-AGS Radiation Safety Committee or Designee shall:

2.3.2. Review and approve the completed checklist.

2.3.3. Determine when retesting is required.

3. Prerequisites

3.1. Procedures previously executed:

3.1.1. AGS OPM's – 4.93.1, 4.93.2, 4.94.1, 4.94.2, 4.94.3, 4.94.4, 4.95.1, 4.96.1 and 4.96.2

3.2. Training:

3.2.1. RWT - 002, " Rad Worker 1".

3.2.2. "AGS Ring and Cave Access".

3.2.3. Facility-specific LOTO for AGS Beam Shutoff.

3.2.4. AGS OPM 9.1.16, "Lockout/Tagout for Radiation Safety (RS LOTO)".

3.3. Minimum Personnel:

3.3.1. One member [Signal Verifier] of the AGS Access Security Sections

4. Precautions

4.1. This procedure shall not be officially executed unless the development systems are disconnected from the A and B divisions, both division A and B key switches in the run position, keys removed and cabinets locked with security system pad locks.

5. **Procedure**

CAUTION

If at any time either the Division A or B equipment does not show the expected signal result, an entry shall be placed in the PASS Maintenance Log Book, the supervisor notified and the necessary repairs conducted.

THE OFFICIAL EXECUTION OF THE TEST PROCEDURE SHALL BE MADE WITH NO DEVIATIONS EXCEPT WITH RSC APPROVAL.

NOTE 1 :- The state of the system may be verified using the Operator Interface, PLC Development System or Maintenance Panel Views.

NOTE 2 :- Each peer may be separately tested and tests may be stopped and restarted between peers.

NOTE 3 :- Equivalencies

Peer 3 – V1, Muon Ring

Peer 23 - Uup, VT

Peer 25 - Udn, V1pri

Mode 2 – Safe

Mode 8 - Restricted Access

Mode 16 – Controlled Access

Mode 24 – No Access

5.1. The Signal Verifier shall record PASS test record sheet the PLC code versions loaded in divisions A and B as recorded in the PASS log in the building 911A PASS laboratory.

5.2. The Signal Verifier shall place the beam line in a safe off condition by performing a RS LOTO of the BTA Beam or of such Critical Devices as defined

by the RSC Chair or Designate [designate which devices are used on record sheet](AGS OPM 9.1.16, "Lockout/Tagout for Radiation Safety (RS LOTO)").

5.3. The Signal Verifier shall request permission from the Operations Coordinator to be able to place the Uup, VT, Udw V1pri, V1 and Muon areas in the Controlled or Restricted Access state or in the Beam Enabled state; and to secure all Beam areas.

5.4. The Signal Verifier shall set up the Uup, VT, Udw V1pri, V1 and Muon areas in the following configuration:

5.4.1. Chipmunks: OK and not in alarm state

5.4.2. CRASH Actuators: Not Activated and Reset

CAUTION:-

PEERS THAT ARE NOT BEING TESTED IN A GIVEN STEP ARE TO BE IN MODE 8 AND SHALL REMAIN IN THAT MODE OTHERWISE THE TEST HAS FAILED.

5.5. The Signal Verifier shall sweep the appropriate area, reset all gates to that area and proceed to fill in the following table:-

Key Action	Start Mode	Finish Mode	Peer 3	Peer 23	Peer 25
Remove Controlled Access Key	**24**	**2**			
Remove Sweep and Reset Key	**24**	**2**			
Try to go to 24 with Controlled Access Key removed	**16**	**16**			
Try to go to 24 with Sweep and Reset Key removed	**16**	**16**			
Try to go 2 to 24 directly	**2**	**2**			
Try to go 8 to 24 directly	**8**	**8**			
Succeed in going to mode 24	**16**	**24**			

5.6. The Signal Verifier shall put the peers in the following states and confirm the indicated status:-

Mode	Critical Device	Gates	Sweeps	Peer 3	Peer 23	Peer 25
2	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
8	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
16	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
24	TTB/LTB, V1D1, V1D2 Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, NOT ENABLED	V1GE1, V1GE2,V 1GE3, MGE1, MED12, MED3 Reset	V1, D6 and Muon Swept			

Mode	Critical Device	Gates	Sweeps	Peer 3	Peer 23	Peer 25
2	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
8	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
16	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
24	TTB/LTB BF6, DH2,3 Enabled H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	UGE1, UGI1 and VTGE1 Reset	Uup and VT Swept			

Mode	Critical Device	Gates	Sweeps	Peer 3	Peer 23	Peer 25
2	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
8	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
16	TTB/LTB Enabled BF6, DH2,3, H10, UD1,2ac, UD1,2dc, V1D1, V1D2 NOT ENABLED	Not Relevant	Not Relevant			
24	TTB/LTB H10, UD1,2ac, UD1,2dc Enabled BF6, DH2,3, V1D1, V1D2 NOT ENABLED	UGE2, UGE3, UED1 and V1P1 Reset	Udn and V1Pri Swept			

5.7. The Signal Verifier will test each Controlled Access and each Sweep/Reset key in every tree to verify that they are unique in the system [Working gray combination are a failure]

Key	Uup/Vt CA	Uup/Vt S/R	Udw/V1pri CA	Udw/V1pri S/R	V1/Muon CA	V1/Muon S/R
Uup/Vt CA						
Uup/Vt S/R						
Udw/V1pri CA						
Udw/V1pri S/R						
V1/Muon CA						
V1/Muon S/R						

5.8. The RS LOTO of the BTA Beam by the Signal Verifier shall be removed as per AGS OPM 9.1.16.

5.9. The Signal Verifier complete, date and sign the test record sheet. This concludes testing.

5.10. The certification of the system is concluded when the Safety Section Head and the RSC Chairman approve the completed check log sheets.

6. Documentation

6.1. Completed checked copy of this procedure.

6.2. Completed copy of PASS test record.

6.3. Completed PASS Maintenance Log.

7. References

7.1. AGS OPM 9.1.16, "Lockout/Tagout for Radiation Safety (RS LOTO)"

8. Attachments

8.1. PASS test record.

PASS Test Record

Test Date: _____

PLC Code Version Div A: _____ **Div B:** _____

Signal Varifier[sign]: _____ **Life Number:** _____ **Date:** _____

Reviewed by RHIC Safety Section Head: _____ **Date:** _____

Approved by RSC: _____ **Date:** _____

Notes: